

### **REMARKS**

Claims 7, 10, 11, 13-20, and 22-25 are now pending in the application. Claims 1-6, 8, 9, 12, and 21 are cancelled. Claims 15, 22, and 23 are withdrawn from consideration; and, claim 16, which previously depended on withdrawn claim 15, is rewritten in independent form. Claims 7, 11, and 19-20 have been amended. Support for the amendments may be found in the original disclosure at paragraph [0019] regarding essentially no transmittance of light of near infrared wavelength and paragraph [0021] regarding film thickness. Claims 24 - 26 are new. Support for the new claims may be found at paragraph [0021] for film thickness and at paragraphs [0022] and [0032] for a roll of film and where a coating layer is formed on a paper substrate. The Examiner is respectfully requested to reconsider and withdraw the rejection(s) in view of the amendments and remarks contained herein.

### **ELECTION / RESTRICTIONS**

The Office Action requires restriction under 35 U.S.C. § 121 of the present application to one of three claimed inventions. The present application contains claims to:

- I) a plastisol composition and an article comprising said composition (claims 1-14 and 16-21);
- II) a method of preparing an article of architectural siding (claim 15); and
- III) a method of protecting a building (claims 22 and 23).

As required under 37 CFR 1.143, Applicants hereby confirm election of Group I, including Claims 1-14 and 16-21. This election is made without traverse.

**REJECTION UNDER 35 U.S.C. § 102 – RAVINOVITCH**

Claims 1-4, 6-8, 10, 11, 13, 16, 17, 19, and 20 are rejected under 35 USC § 102(b) as being anticipated by Ravinovitch et al. (US Pat. No. 4,424,292), as evidenced by US Pat. No. 4,728,677. This rejection is respectfully traversed.

Currently amended independent Claims 7, 11, 16, 19, and 20 are to a film, article of architectural siding, coated article, and an article where each has an infrared reflective pigment in a sufficient amount so that there is essentially no transmittance of light of near infrared wavelength through the film or layer. By increasing infrared reflectance and reducing transmittance of infrared light, there is lower heat build-up and thus lower energy costs. See paragraph [0004]. The present invention provides *essentially no transmittance* of near infrared wavelength using a thin film or layer. See paragraph [0019]. And use of a thin film or layer saves significant expense when compared to incorporating an amount of infrared reflective pigment within an entire article of architectural siding, for example. See paragraph [0004].

In contradistinction, the Ravinovitch reference discloses that “the black pigment should be used at an *effective level*, based on the weight of the vinyl polymer or polymers in the composition.” See col. 4, lines 40-42; and see claim 1 (emphasis added). “By use of such [infrared reflecting] pigments, the heating of vinyl polymer articles, such as vinyl house siding, is lowered without changing the ultraviolet protection or color thereof.” See col. 4, lines 24-27. The examples provided in the reference further illustrate various amounts of infrared reflective pigments, where the heat buildup is lowered 4°C to 13°C. See Ravinovitch, Table I. These examples

illustrate the *effective level* of Ravinovitch is to lower heat buildup, but none of the examples, and nowhere in the specification, is an *effective level* defined or disclosed as encompassing *essentially no transmittance* of light of near infrared wavelength as in the present invention.

For example, the Ravinovitch reference uses various amounts of Ferro Black (an infrared reflective pigment) in the example and shown in Table I. These various amounts result in different effects on heat buildup. Consequently, the *effective amount* in each example does lower the heat buildup, but nowhere does the reference disclose *essentially no transmittance* of light of near infrared wavelength. The variable amounts of Ferro Black used and the variable effects on heat buildup infer that the examples produce varying transmittance of light of near infrared wavelength. Consequently, the *effective amount* of infrared reflective pigment in Ravinovitch is *not* the same as a sufficient amount so that there is *essentially no transmittance* of light of near wavelength through the film or layer. Therefore, pending independent claims 7, 11, 16, 19 and 20, and dependent claims 10, 13, 14, 17, 18, and 24–26 are not anticipated by Ravinovitch.

#### **REJECTION UNDER 35 U.S.C. § 103 – RAVINOVITCH WITH CEPRINI**

Claim 5 is rejected under 35 USC 103(a) as being unpatentable over Ravinovitch et al. (US Pat. No. 4,424,292), as applied to claims 1-4, 6-8, 10, 11, and 13 in view of Ceprini et al. (US Pat. No. 4,316,987). This rejection is respectfully traversed, as the issue is rendered moot by the cancellation of claim 5.

**REJECTION UNDER 35 U.S.C. § 103 – RAVINOVITCH WITH WHEATLEY**

Claims 9, 12, and 21 are rejected under 35 USC 103(a) as being unpatentable over Ravinovitch et al. (US Pat. No. 4,424,292), as applied to claims 1-4, 6-8, 10, 11, and 13 above, and further in view of Wheatley et al. (US Pat. No. 5,233,465). This rejection is respectfully traversed.

The currently amended claims expressly include an infrared reflective pigment in a sufficient amount so that there is essentially no transmittance of light of near infrared wavelength. As previously discussed in traverse of the 102 rejection above, the Ravinovitch reference does not disclose a film, article of architectural siding, coated article, and article disclosed by the present invention. The *effective amount* of infrared reflective pigment of Ravinovitch does not disclose a sufficient amount so that there is *essentially no transmittance* of light of near infrared wavelength. And nowhere in the reference is it suggested to use a sufficient amount of pigment to provide essentially no transmittance.

Furthermore, the Wheatley reference does not disclose the use of infrared reflective pigments. Instead, the reference discloses reflection of infrared light by using "a polymeric multilayered film made up of multiple alternating layers of diverse polymers." See col. 2, lines 53-55; and see definition of "diverse" col. 2, lines 63-66. These layers differ in terms of refractive index, which is how the film in the Wheatley reference reflects light in the infrared spectrum. See col. 1, lines 17-19, 63-66. Thus, the number of layers can be varied from 50 to over 1000, changing the thickness of the film, but the reference relies on the differing refractive index of alternating layers to reflect infrared light. See col. 2, lines 1-2. And the multilayered films can be varied in

optical thickness, defined as the actual thickness of the layer times its refractive index. See col. 1, lines 26-32. The Wheatley reference is also directed at substantially transparent polymeric materials where visible light is transmitted. Consequently, one skilled in the art would not vary the thickness of the infrared pigment containing layer of Ravinovitch to optimize the reflection spectra of the layer, as in Wheatley. Ravinovitch does not contain *multiple* alternating layers of diverse refractive index, and the Ravinovitch layers are not substantially transparent. As a result, no combination of Ravinovitch with Wheatley would produce the present invention.

#### **REJECTION UNDER 35 U.S.C. § 103 – RAVINOVITCH WITH SULLIVAN**

Claims 14 and 18 are rejected under 35 USC 103(a) as being unpatentable over Ravinovitch et al. (US Pat. No. 4,424,292), as applied to claims 1-4, 6-8, 10, 11, and 13 above, and further in view of Sullivan et al. (US Pat. No. 6,416,868). This rejection is respectfully traversed.

Claim 14 is dependent on independent claim 11, and the article of architectural siding of Claim 11 is distinguishable from the Ravinovitch disclosure as previously discussed in traverse of the 102 rejection above. Briefly, the Ravinovitch reference does not disclose an article having an outer layer that includes an infrared reflective pigment in a sufficient amount so that there is *essentially no transmittance* of light of near infrared wavelength through the layer. Accordingly, combination of the composition of Ravinovitch with a metal substrate, as shown in Sullivan, would not result in an article of architectural siding, as per claim 14 or claim 18. And there is no teaching, disclosure, or suggestion in Ravinovitch or Sullivan to use an outer coating

layer, which includes an infrared-reflective pigment in a sufficient amount so that there is *essentially no transmittance* of light of near infrared wavelength through the layer, to cover an aluminum article. So, even if a skilled artisan would recognize that Sullivan teaches infrared induced heat buildup is an issue on metal substrates as well as plastic substrates, the combination of the Ravinovitch composition with a metal substrate fails to produce the present invention.

### CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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